



Installation Instructions - FR SuperPack 600

P/Ns: M-6066-SGT (Black)

M-6066-SGTP (Polished)

Application: 2007 Ford SVT Mustang

EO# D-418-7

Licensed by: Roush Performance Products
28156 Plymouth Road
Livonia, MI 48150



Important Notes:

- **BEFORE INSTALLING** the FR SuperPack 600, please register this product by following the steps listed on the yellow voucher card included with the kit. **PRODUCT REGISTRATION IS REQUIRED** to receive the ProCal flash tool used to recalibrate the vehicle PCM. Operating the engine without the PCM recalibration will result in engine damage or failure and will **VOID THE WARRANTY**.
- Please read the installation manual carefully and verify that all items are present. If you are missing hardware or have any questions, please contact the Ford Racing Call Center at 1(800) 367-3788.
- Premium fuel (91 octane or higher) is required to prevent "spark-knock" or detonation under certain operating conditions. The use of fuel additives (ie. octane boosters) is not recommended. There is a possibility that these chemicals can damage your engine and cause drivability issues with your vehicle.



PACKAGING LIST FOR COMPLETE KIT



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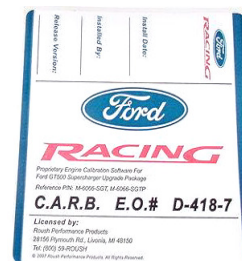
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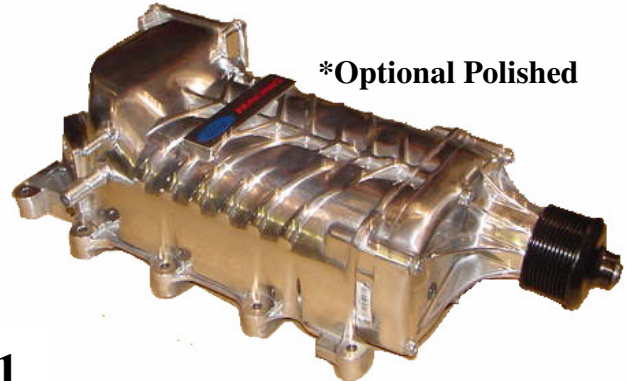


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Item	Description	Part Number	Qty
1	Clean Air Tube	R07060101	1
2	Air Box Assembly	R07060106	1
3	High Flow Conical Air Filter w/ Worm Clamp	R07060131	1
4	Clean Air Tube Support Bracket	R07060104	1
5	Bolt - Bracket to Tube & Airbox (M6 x 13)	N605771	3
6	Bolt - Airbox to ABS Bracket (M8 x 33)	N808920	1
7	EO Label	R07040042	1



1



*Optional Polished



2



3



4

Item	Description	Part Number	Qty
1	TVS2300 Supercharger (Black Finish) TVS2300 Supercharger (Polished)	R07050050 *R07050053	1
2	Registration/Warranty Voucher	R07140004	1
3	Installation Instructions	R07050051	1
4	ProCal Flash Tool	NPN	0**

The ProCal flash tool is **NOT included in the kit. Once you register the product with Ford Racing, this tool will be shipped to you.



EQUIPMENT AND SUPPLIES REQUIRED

- 1/4" and 3/8" Drive Ratchets with Extensions
- Metric and Standard Socket Sets (short and deep recommended)
- 3/8" Drive Ratchet or Breaker Bar
- Metric and Standard Wrench Sets
- Torque Wrenches
- Short Phillips-head Screwdriver
- Hex Key Set
- T-20 Torx Bit Screwdriver or Socket
- Thread Sealing Compound
- Medium Strength Thread Locker – Loctite 242 (blue) or equivalent
- Ford Service Manual

GLOSSARY OF TERMS

ACT	Air Charge Temperature Sensor
ETC	Electronic Throttle Control
IPTS	Injection Pressure and Temperature Sensor
MAFS	Mass Air Flow Sensor
PCM	Powertrain Control Module (a.k.a. ECM, ECU, PCU, EEC)
PCV	Positive Crankcase Ventilation
TPS	Throttle Position Sensor
VMV	Vapor Management Valve (Located on driver side strut tower)

INFORMATION ABOUT THE SUPERCHARGER BYPASS OPERATION

There is a great deal of misinformation about the function of supercharger bypass systems. The supercharger is a positive-displacement pump; that is, so long as it is rotating, it is always pumping air. During low demand or high vacuum operation (i.e. idle, deceleration, and light throttle cruise), the pumping action is undesirable as it creates unwanted heat and noise. The bypass circuit, when open, prevents any pressure buildup across the supercharger and allows air to circulate through the rotors, allowing the supercharger to "idle" freely during these conditions. This results in reduced noise, and by reducing heat buildup in the intake, significantly improves street and strip performance. As throttle demand increases, the bypass circuit is closed, resulting in full performance from the supercharger. The bypass circuit is never used to limit or control boost during full-throttle operation and defeating or altering the bypass function will not result in improved performance in any condition, and will result in poor drivability.



SAFETY PRECAUTIONS

STOP! CAREFULLY READ THE IMPORTANT SAFETY PRECAUTIONS AND WARNINGS BEFORE PROCEEDING WITH THE INSTALLATION!

Appropriate disassembly, assembly methods and procedures are essential to ensure the personal safety of the individual performing the kit installation. Improper installation due to the failure to correctly follow these instructions could cause personal injury or death. Read each step of the installation manual carefully before starting the installation.


- ☑ Always wear safety glasses for eye protection.
- ☑ Place the ignition switch in the OFF position.
- ☑ Always apply the parking brake when working on the vehicle.
- ☑ Block the front and rear tire surfaces to prevent unexpected vehicle movement.
- ☑ Operate the engine only in well-ventilated areas to avoid exposure to carbon monoxide.
- ☑ Do not smoke or use flammable items near or around the fuel system.
- ☑ Use chemicals and cleaners only in well-ventilated areas.
- ☑ Batteries can produce explosive hydrogen gas, which can cause personal injury. Therefore do not allow flames, sparks or flammable sources to come near the battery.
- ☑ Keep hands and any other objects away from the radiator fan blades.
- ☑ Keep yourself and your clothing away from moving parts when the engine is running.
- ☑ Do not wear loose clothing or jewelry which can be caught in rotating or moving parts.




SECTION A - DISASSEMBLY

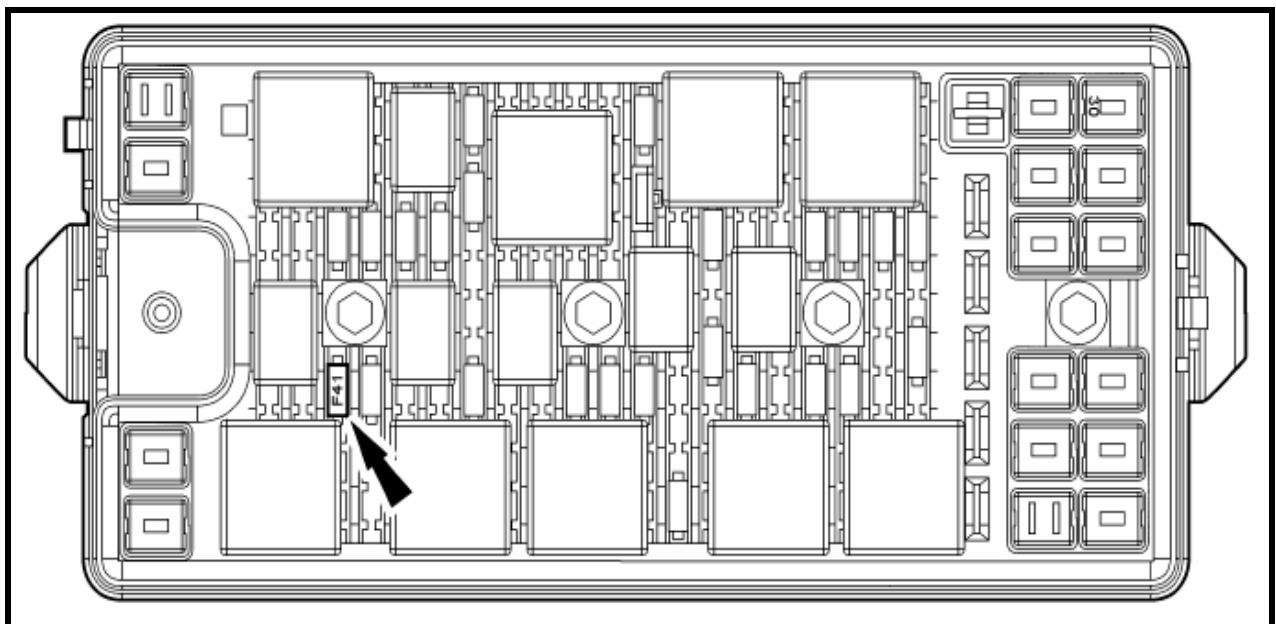
The following section will guide you through the disassembly of the stock components. Special care should be taken to label fasteners and parts that are taken off during this procedure since many will be reused:

1. Cover both fenders with fender covers to protect the vehicle finish.
2. Release the fuel system pressure (**NOTE:** The following procedure is taken directly from the Ford Service Manual, section 310-00).

 **WARNING:** Fuel in the fuel system remains under high pressure even when the engine is not running. Before working on or disconnecting any of the fuel lines or fuel system components, the fuel system pressure must be relieved. Failure to do so can result in personal injury.

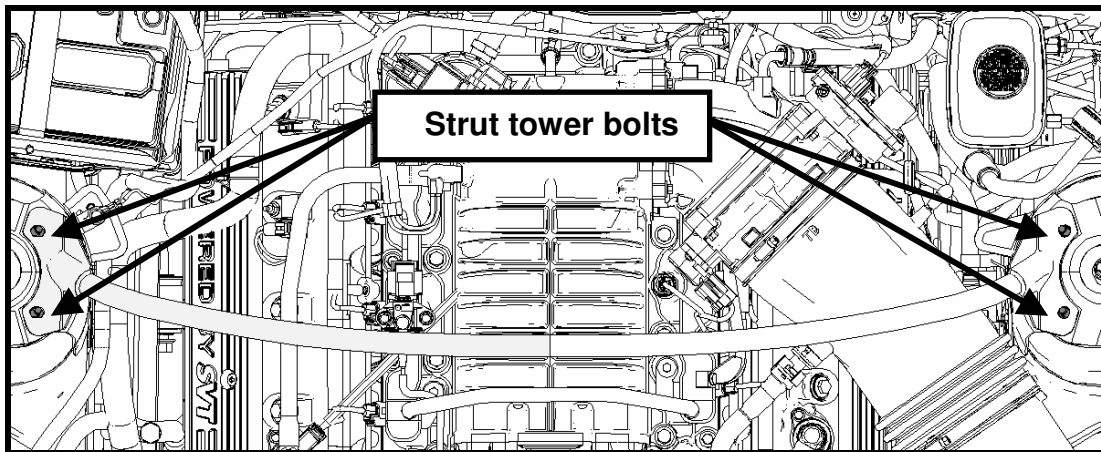
 **WARNING:** Do not smoke or carry lighted tobacco or open flame of any type when working on or near any fuel-related components. Highly flammable mixtures are always present and can be ignited, resulting in personal injury.

- a. Remove the fuel pump module fuse.
NOTE: The fuel pump module fuse is located in the bussed electrical center, location F41.

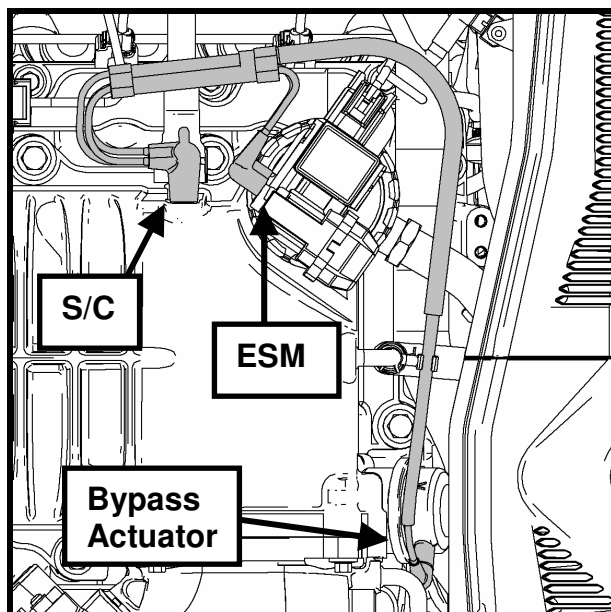




- b. Start the engine and allow it to idle until it stalls.
 - c. After the engine stalls, crank the engine for approximately 5 seconds to make sure the fuel injector supply manifold pressure has been released.
 - d. Turn the ignition switch to the OFF position.
3. Disconnect the (-) negative & (+) positive connections to the battery. Cover the (+) positive battery terminal to prevent any contact.
 4. Remove the factory strut tower brace.



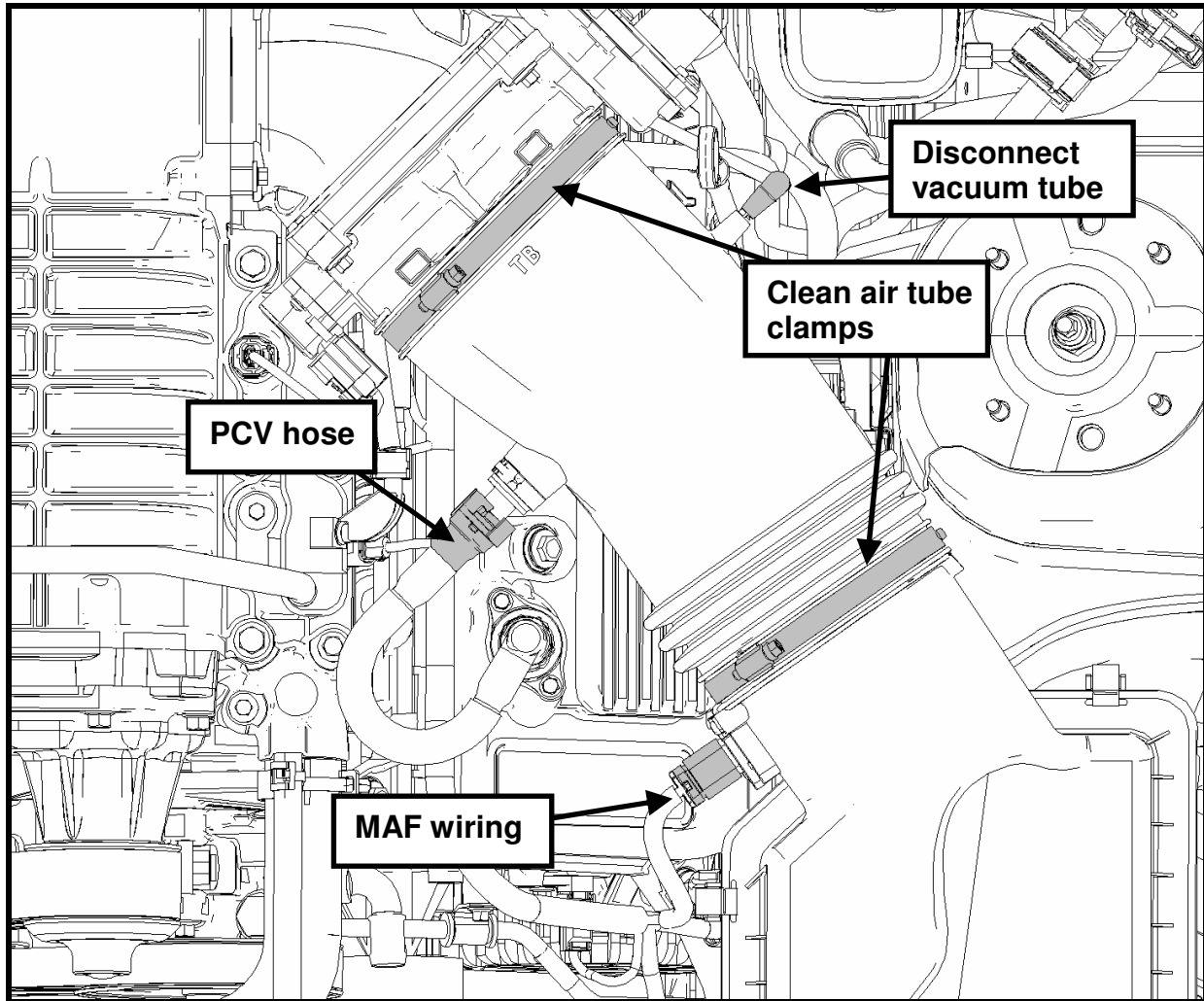
5. Carefully label each port before removing the vacuum harness from the vehicle (ie. supercharger housing, ESM and supercharger bypass actuator).



NOTE: A separate vacuum line connects the bypass actuator to the clean air tube. This will be disconnected from the supercharger later.

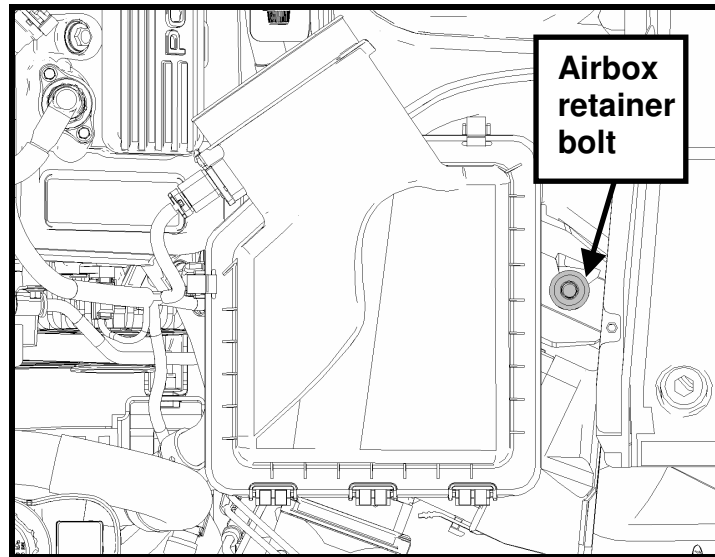


6. Disconnect the electrical connector from the MAF sensor. Disconnect the vacuum harness and PCV hose from the clean air tube. Remove the clean air tube from the airbox and throttle body.

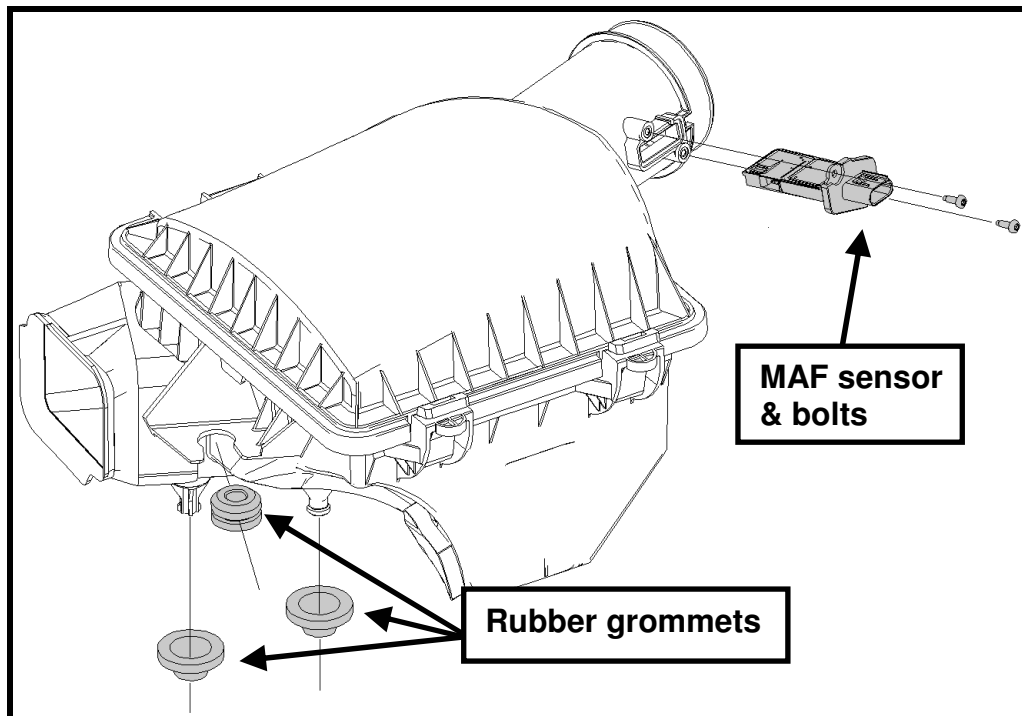




7. Remove the airbox retainer bolt and assembly from the vehicle.

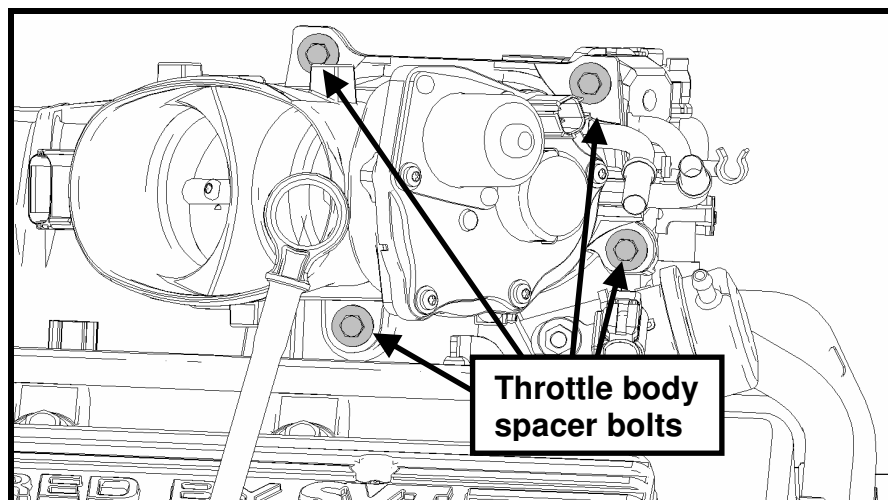
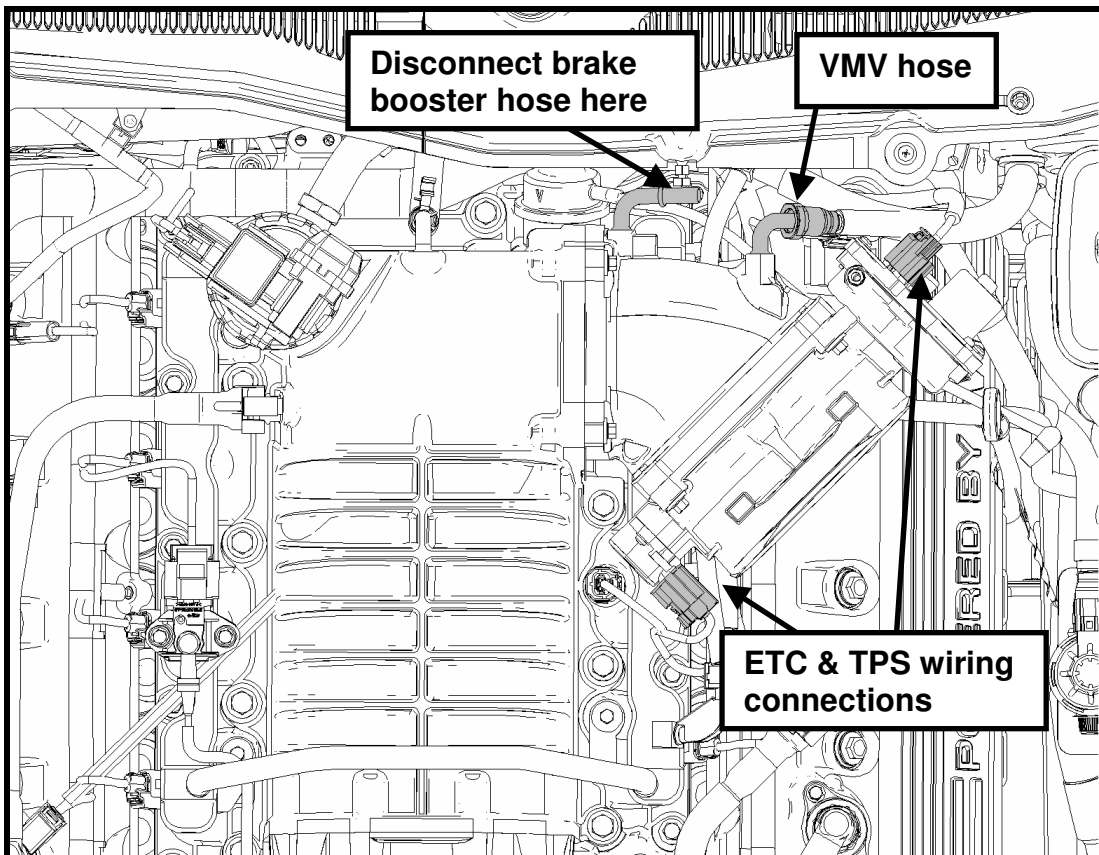


8. Remove the three grommets, MAF and MAF bolts from the factory airbox. These will be reused later.



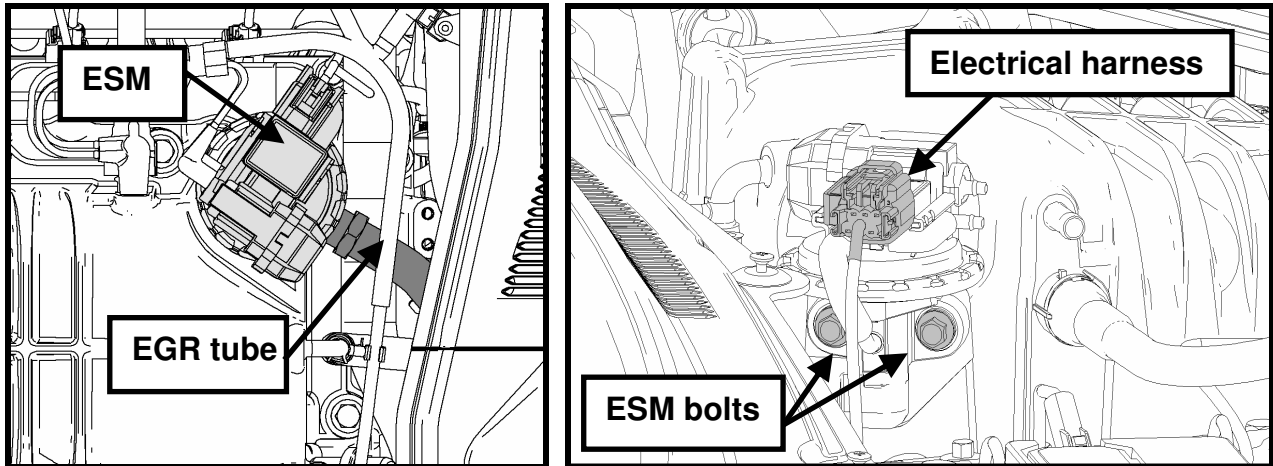


9. Disconnect the throttle body wiring in two places (ETC & TPS connections). Disconnect the brake booster and VMV hoses from the throttle body spacer. Remove the throttle body spacer (including throttle body) from the supercharger.

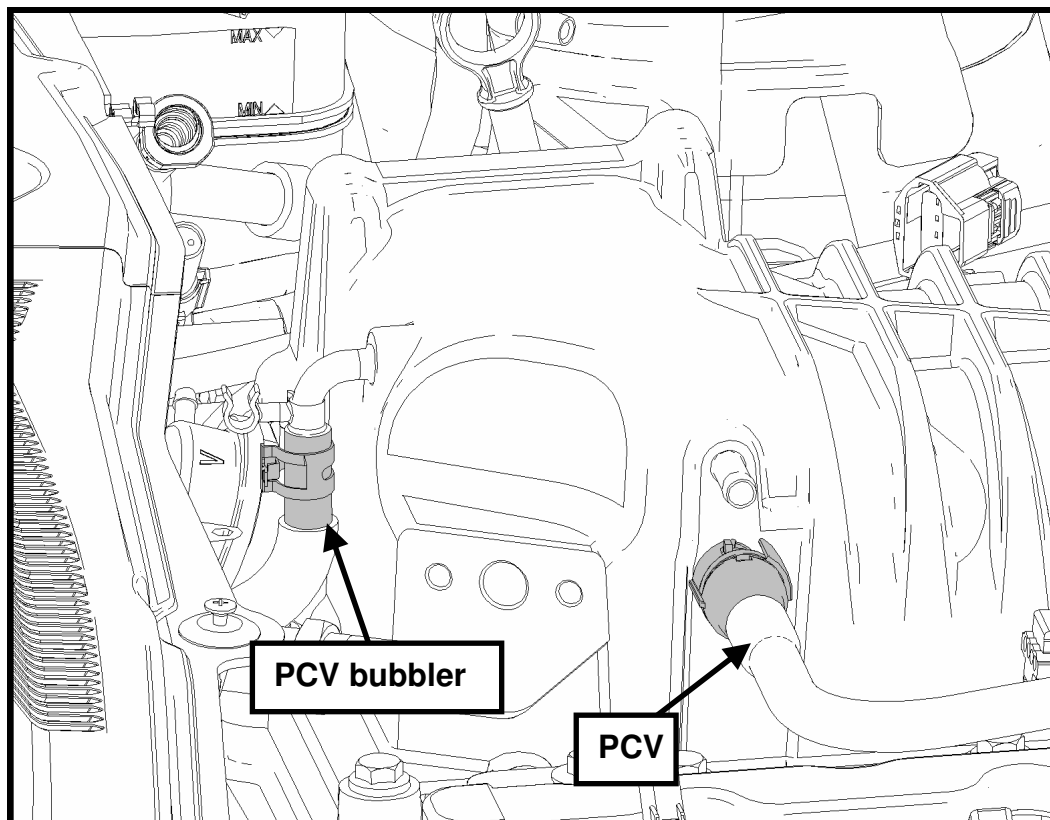




10. Remove the ESM (EGR System Module) electrical connector. Remove the EGR tube nut from the ESM. Remove the ESM bolts and assembly from the supercharger. **NOTE:** The ESM gasket will be reused. It is important that it does not become damaged or lost.

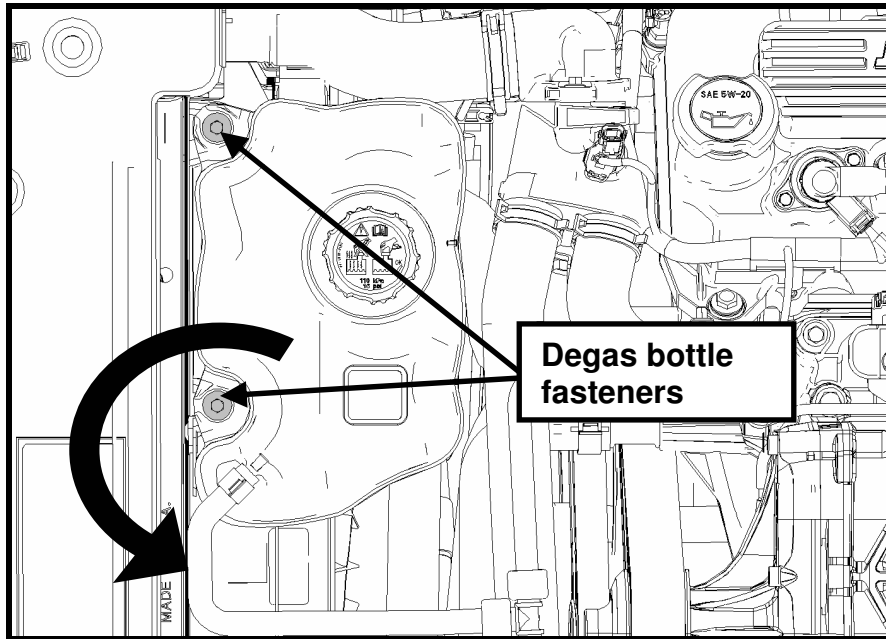


11. Disconnect the PCV and PCV bubbler hoses from the supercharger.

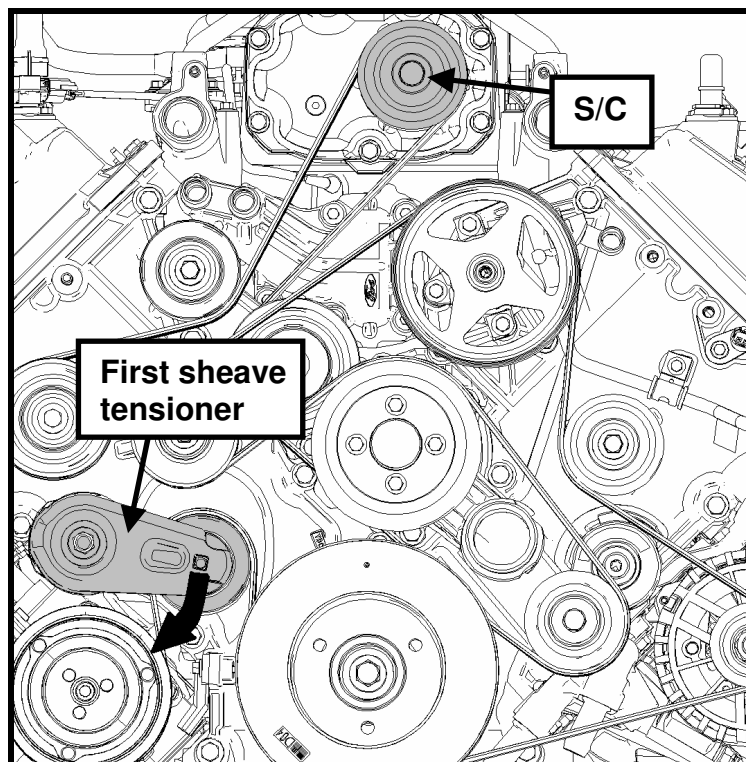




12. Remove the two degas bottle fasteners. Make sure the cap is tightly secured. Rotate the degas bottle out of the way to gain additional access to the FEAD belt tensioner.

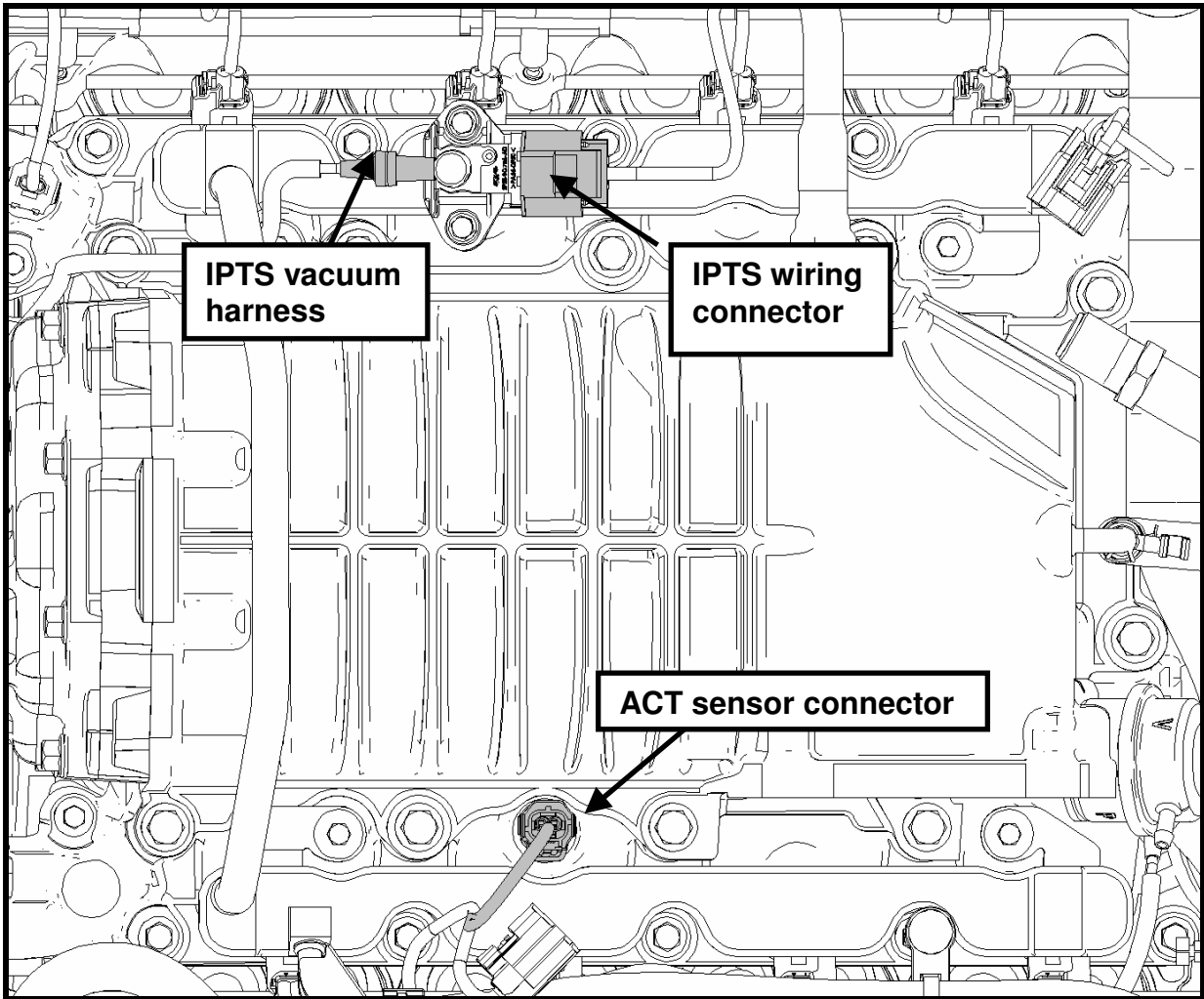


13. Use a 3/8" breaker bar to release the first sheave tensioner and remove the FEAD belt from the supercharger pulley.






14. Disconnect the wiring harness and vacuum tube from the fuel rail pressure sensor (IPTS). Disconnect the wiring harness from the ACT sensor.




15. Disconnect all eight fuel injector wiring connectors.

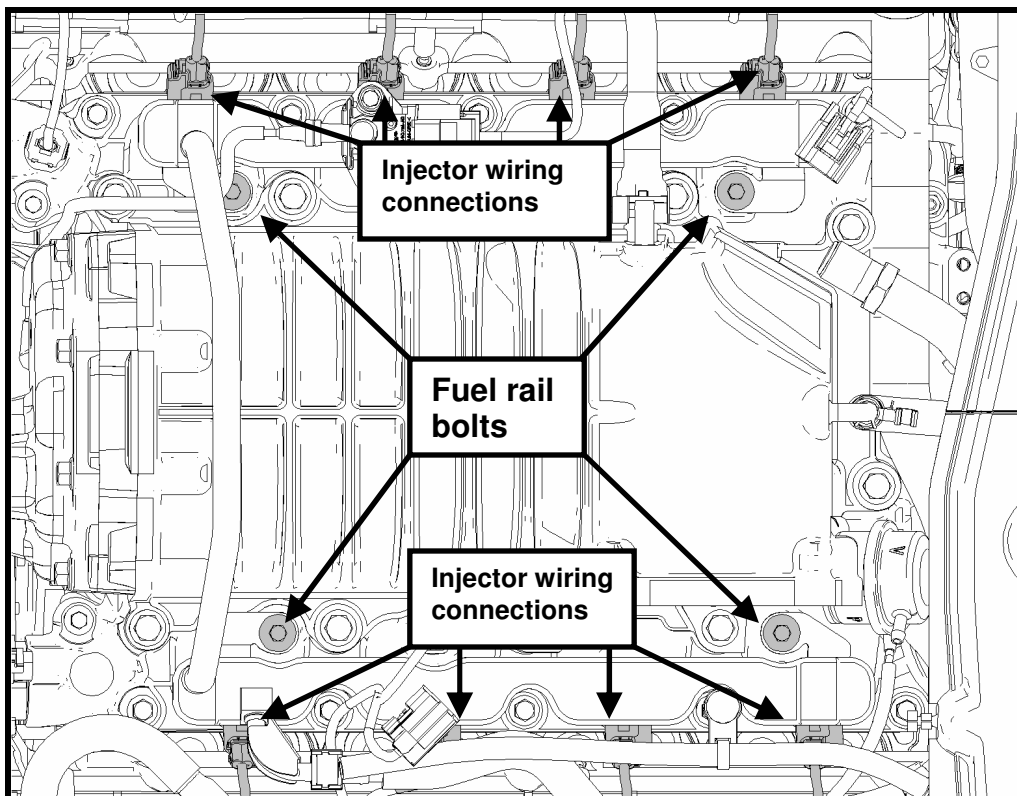


16. Remove the fuel rail mounting bolts. Pull up on the fuel rail and all eight injectors to gain access to the supercharger. Rotate the fuel rail around the fuel rail supply line and set aside on the driver side strut tower.

 **WARNING:** Do not smoke or carry lighted tobacco or open flame of any type when working on or near any fuel-related components. Highly flammable mixtures are always present and can be ignited, resulting in personal injury.

 **WARNING:** Fuel in the fuel system remains under high pressure even when the engine is not running. Before working on or disconnecting any of the fuel lines or fuel system components, the fuel system pressure must be relieved. Failure to do so can result in personal injury.

NOTE: Be careful not to get any contaminants in the injectors or into the boss on the intake manifold. Be careful not to damage the O-rings on the injectors.



17. Remove the supercharger mounting fasteners and carefully remove the supercharger from the vehicle. If the dowel pins did not remain in the intake manifold, remove them from the supercharger and re-install into the intake. Transfer the vacuum line (attached to the supercharger bypass valve) to the new supercharger. **NOTE:** Attempt to maintain the stock orientation and connect to the lower port.

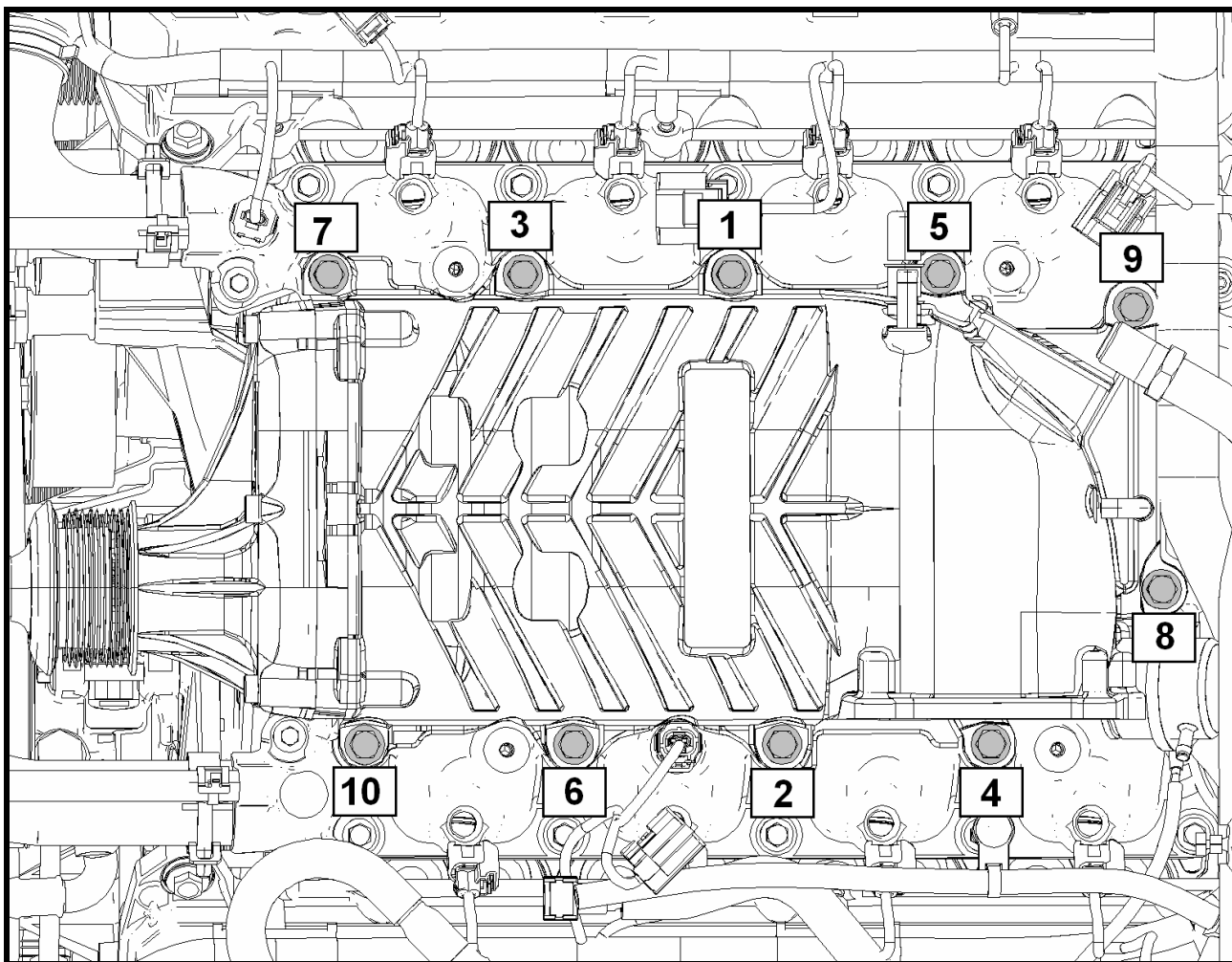


RACING
PERFORMANCE PARTS

SECTION B- INSTALLATION

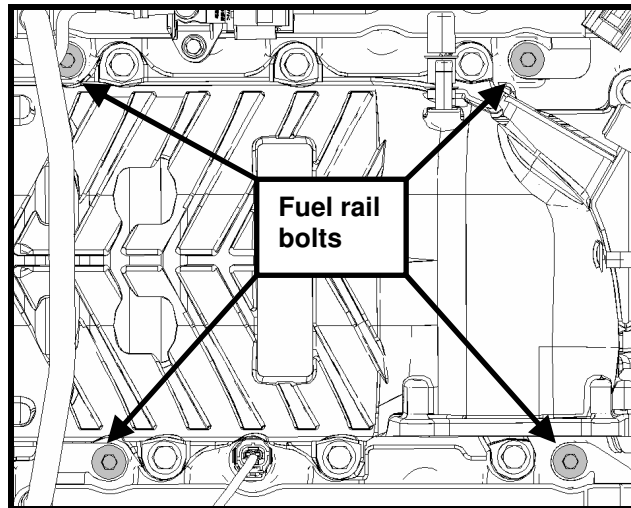
The following section will guide you through the final installation of this kit. If you need to stop during any part of the installation, make sure you cover any open ports in the cylinder heads or intake manifold to prevent foreign material from contaminating your engine.

1. Install the new supercharger to the intake manifold using the stock fasteners. Torque the fasteners to 5 Nm using the inside-out pattern shown below. Repeat this procedure and torque each fastener to 25 Nm.

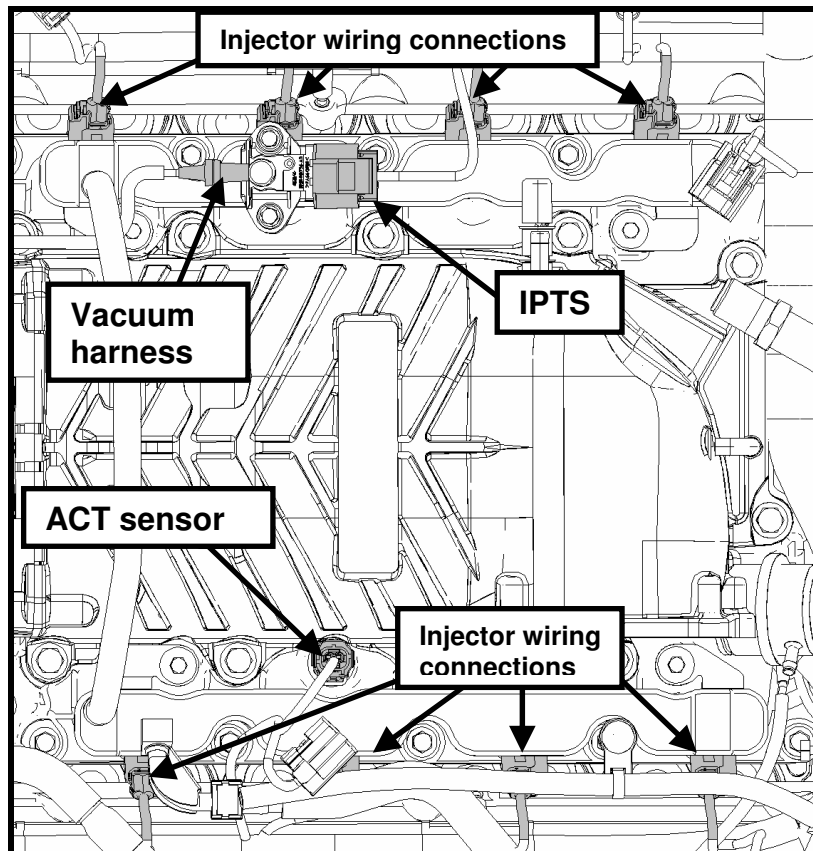




2. Re-install the injectors and fuel rail onto the intake manifold. Torque fuel rail bolts to 10 Nm.

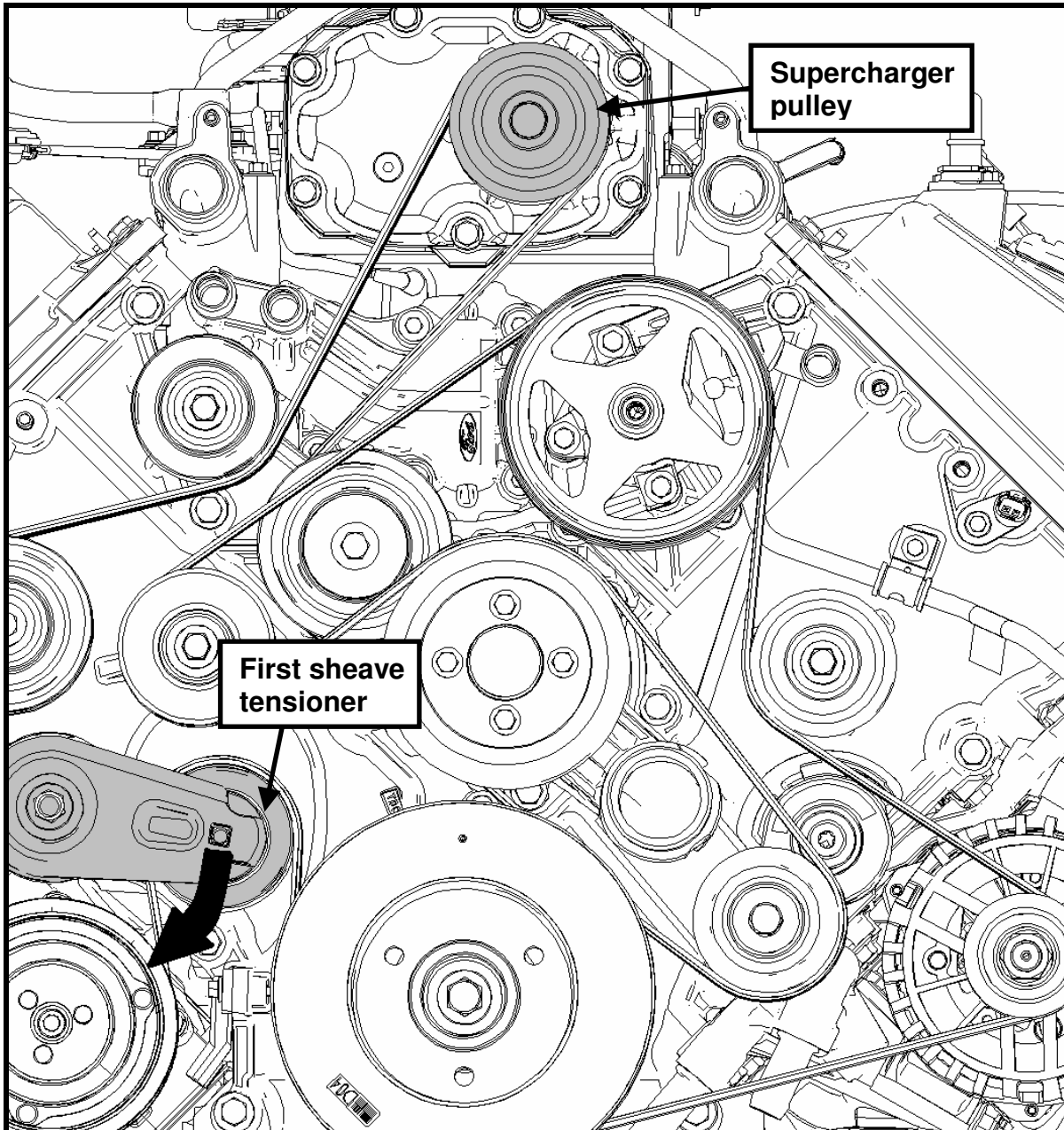


3. Connect fuel injector wiring harnesses, fuel pressure regulator (IPTs) electrical harness, vacuum harness and ACT wiring connector.



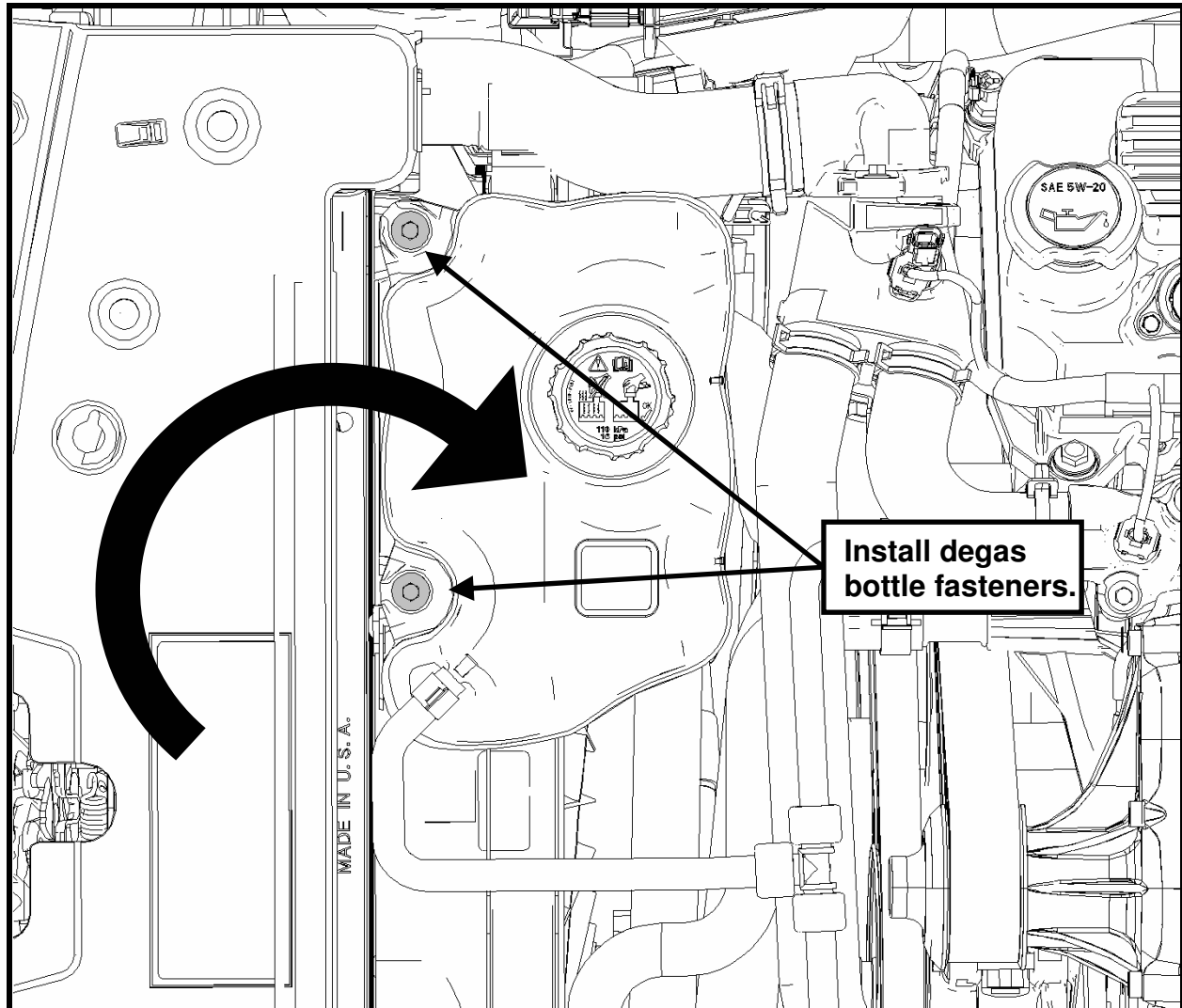


4. Re-install the FEAD belt over the supercharger pulley by using a breaker bar to release the tensioner.



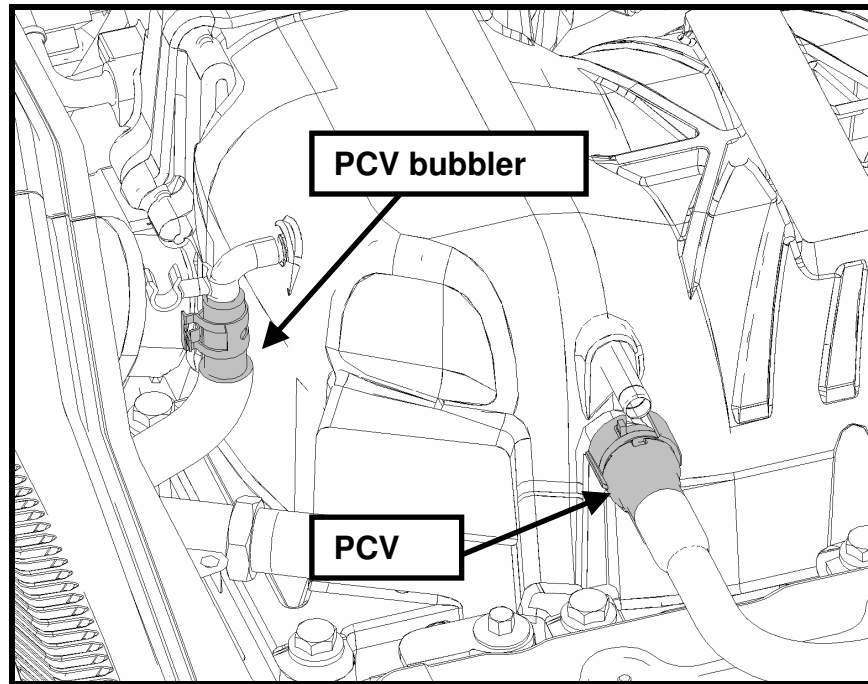


5. Rotate the degas bottle back into place. Re-install the two fasteners used to secure the degas bottle in place and torque to 10 Nm.

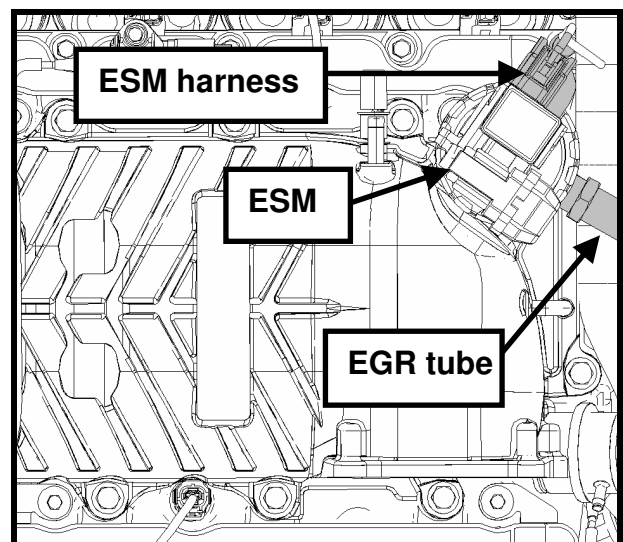
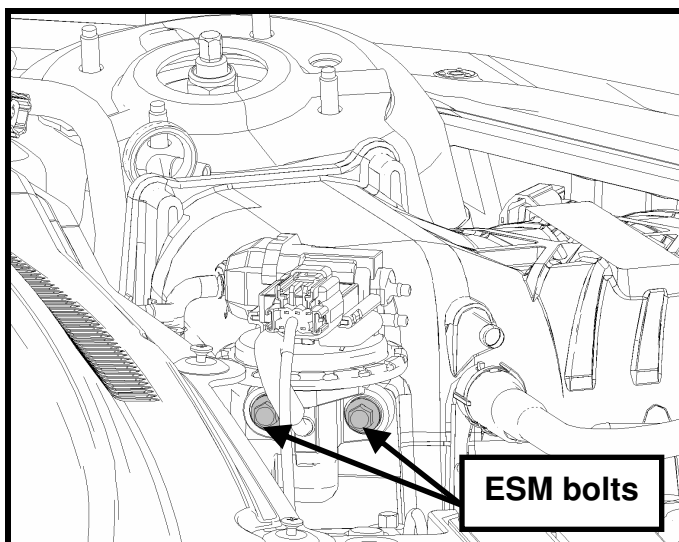




6. Re-install the PCV and PCV bubbler lines to the supercharger housing.



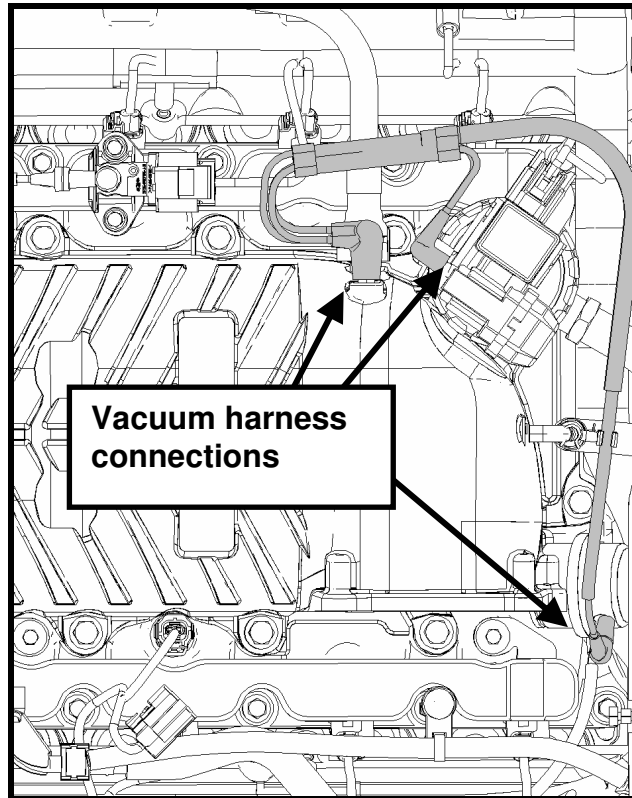
7. **Apply a thread sealing compound to the stock EGR bolts.** Install the ESM and torque the bolts to 25 Nm. Connect ESM electrical harness and the EGR tube. Torque the EGR tube to 35 Nm.



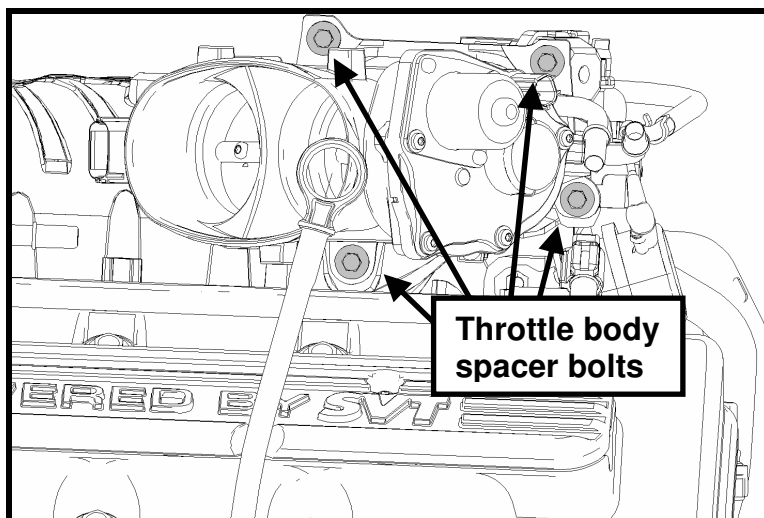


8. Re-install the vacuum harness to the ESM, supercharger, and supercharger bypass actuator.

NOTE: Ensure the harness is properly routed and all connections are fully seated.

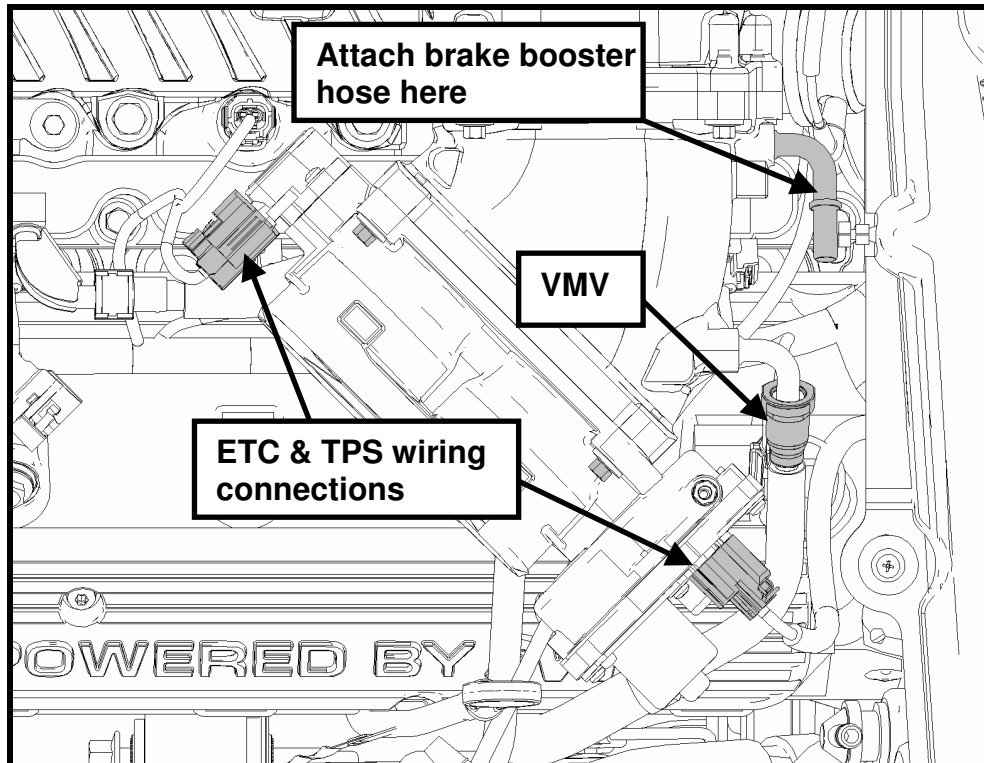


9. Re-install the stock throttle body spacer assembly to the supercharger using the stock bolts and torque to 10 Nm.

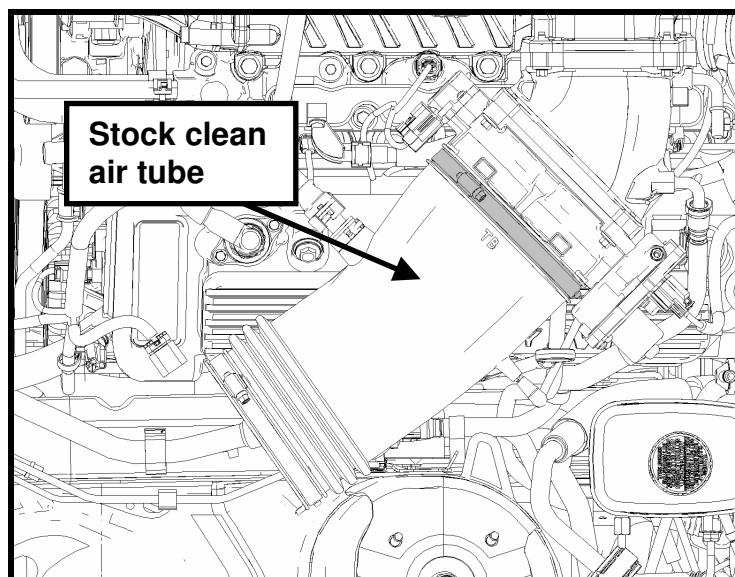




10. Re-install the brake booster hose and VMV to the throttle spacer. Re-connect the electrical harness to the ETC and TPS mounted on the throttle body.

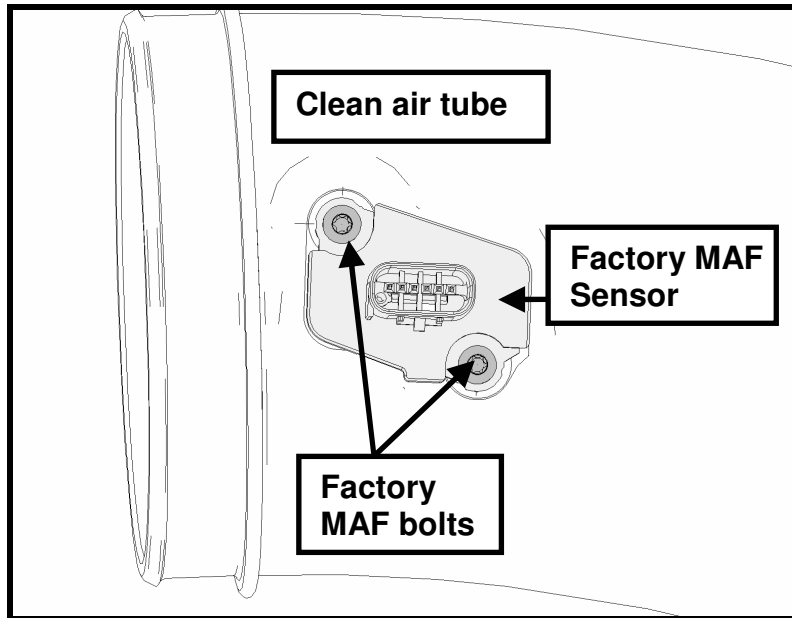


11. Re-install the stock clean air tube onto the throttle body. Do not tighten the clamp at this point.

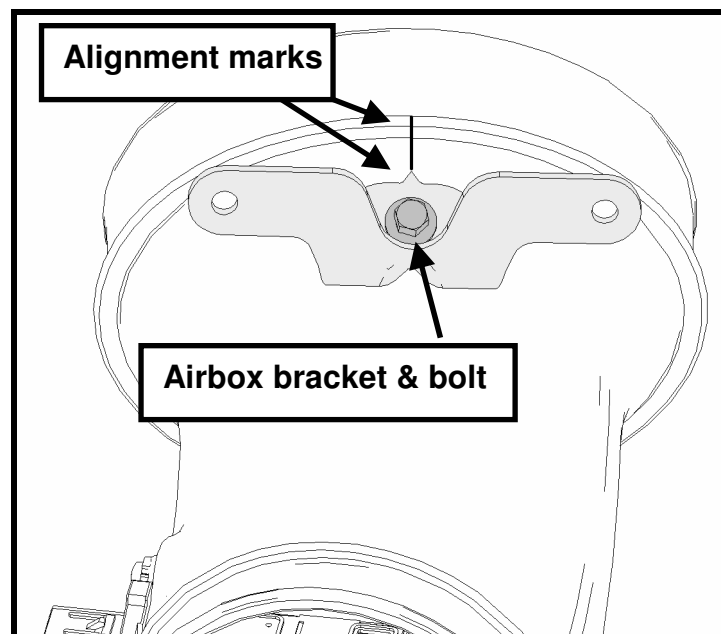




12. Install the MAF sensor and bolts from the stock airbox into the new clean air tube (R07060101). Torque the bolts to 4 Nm.

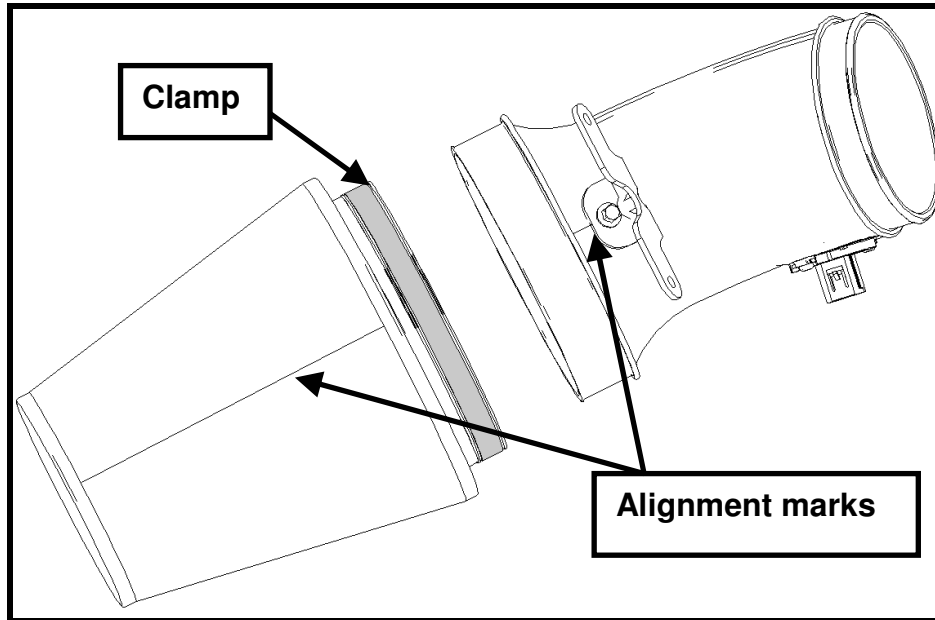


13. Install the clean air tube support bracket (R07060104) to the clean air tube and position using the alignment marks on both the bracket and the tube. Secure the bracket to the tube using the bolt (N605771) supplied in the kit. **NOTE:** Apply medium strength thread locking compound to the bolt threads prior to installation and torque this bolt to 10 Nm.

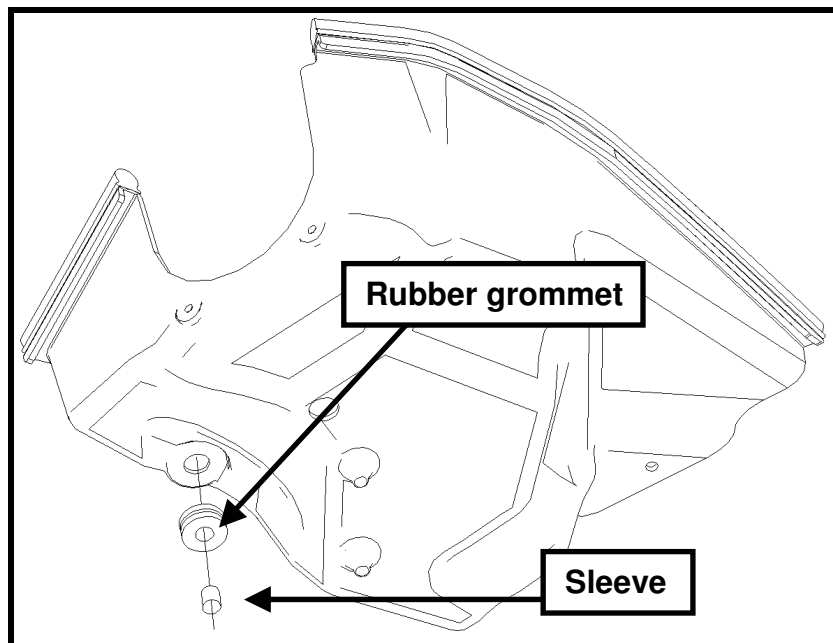




14. Install the air filter (R07060131) to the clean air tube and torque the worm drive clamp to 3 Nm.
NOTE: Align the metal strip on the air filter with the alignment mark on the clean air tube.

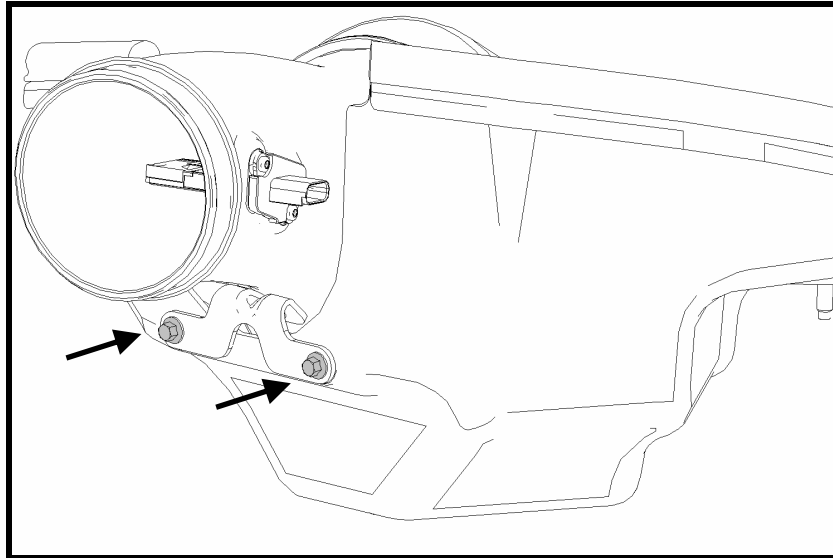


15. Install the rubber grommet from the factory airbox into the new airbox housing (R07060106).
NOTE: Remove the metal sleeve to ease grommet insertion into the airbox. Once the rubber grommet is firmly seated in position, re-install the metal sleeve into the grommet.

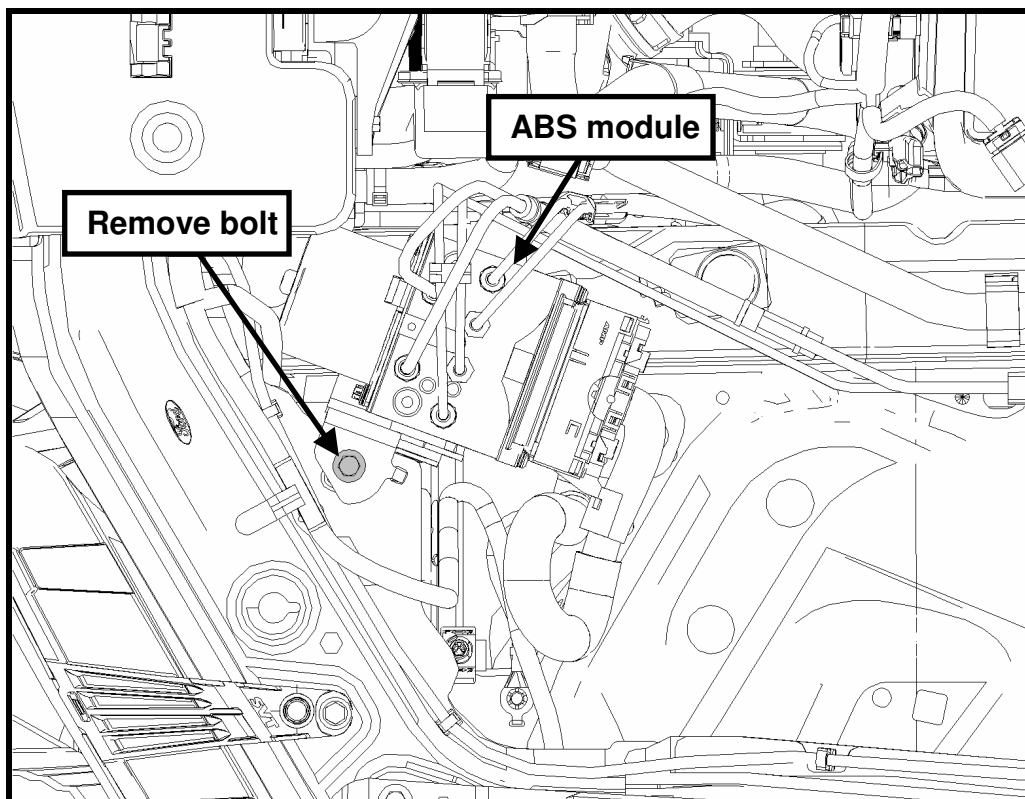




16. Assemble the air tube and filter onto the airbox housing using two bolts (N605771) and torque to 10 Nm.

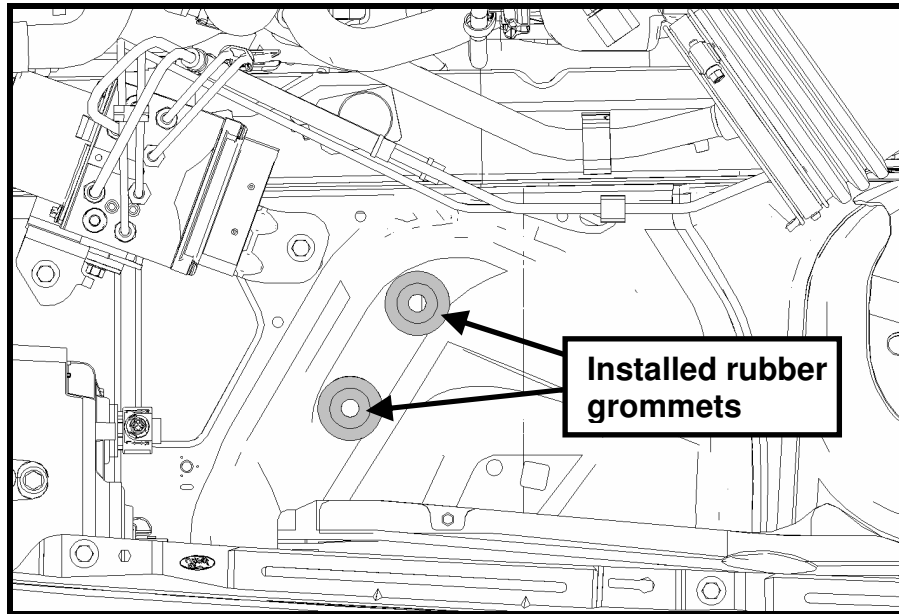


17. Locate the ABS module bracket and remove the bolt shown below.

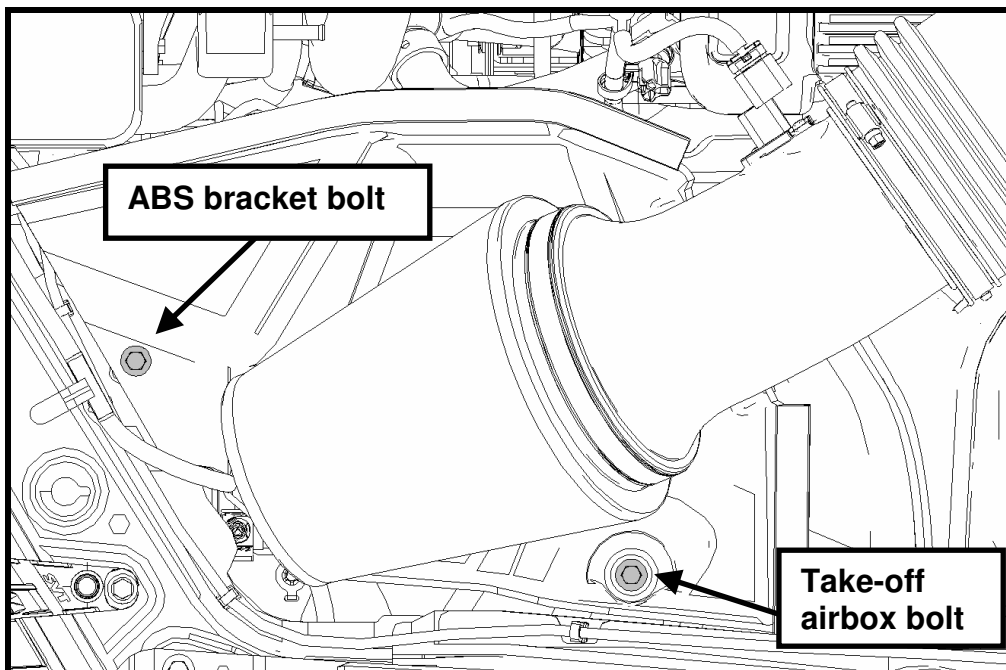




18. Install the rubber grommets (previously removed from the factory airbox) into the holes located beneath the airbox, rearward of the ABS module.

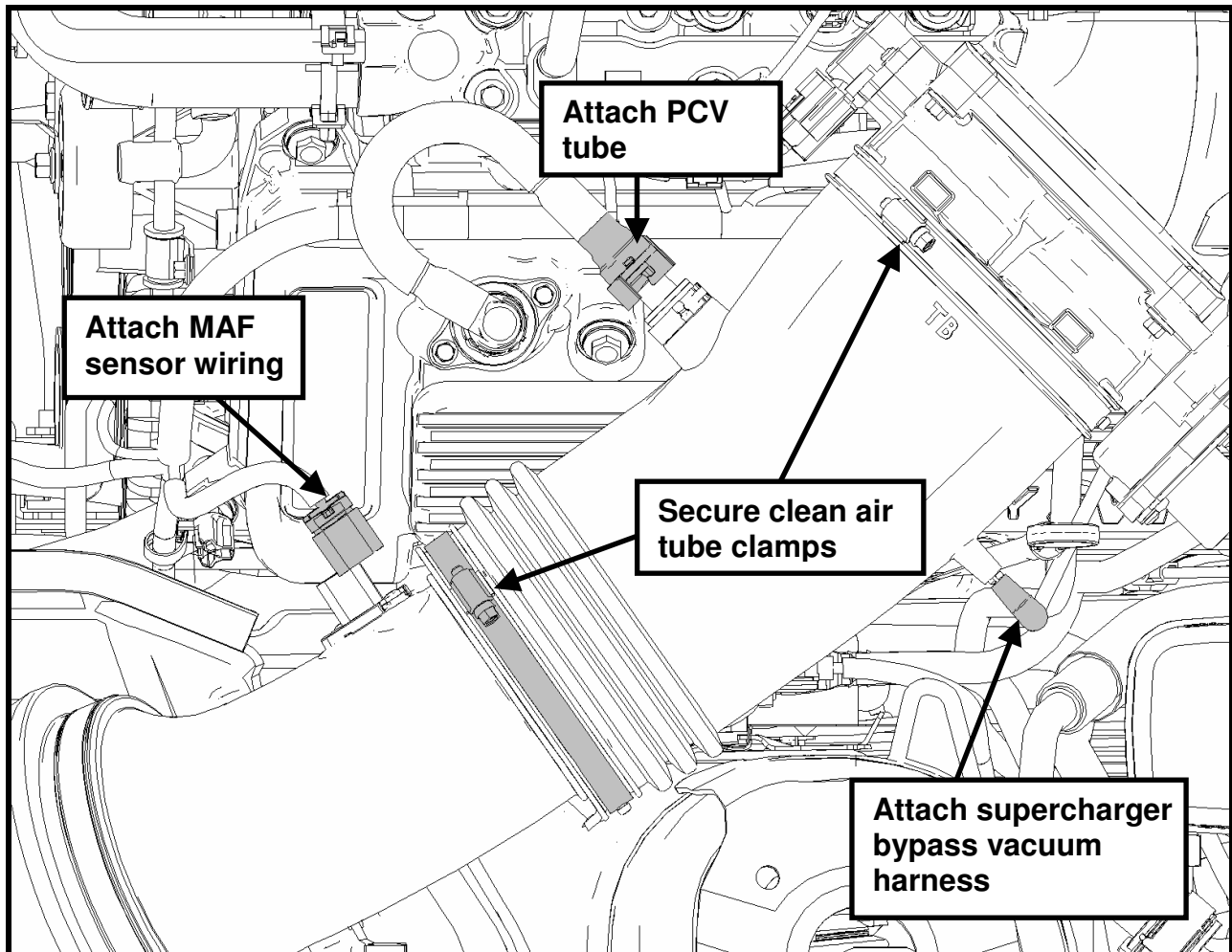


19. Lower the complete airbox assembly into the vehicle using the two pegs as guides into the rubber grommets. Use the take-off airbox bolt and newly supplied ABS bracket bolt (N808920) to secure the airbox in the vehicle. Torque the M6 bolt to 10 Nm, and the M8 bolt to 25 Nm.





20. Install the stock rubber clean air tube onto the new clean air tube/airbox assembly. Tighten both ends using worm drive clamps and torque to 3 Nm.
21. Re-install the PCV line and vacuum harness onto the clean air tube. Re-install the MAF electrical connector onto the MAF sensor.



22. Re-install the strut tower brace and torque nuts to 35 Nm.
23. Reinstall the battery connections. Connect the positive cable first then the negative cable to the battery. Check to ensure that the battery is fully charged (12.0V to 14.5V).



24. VERY IMPORTANT!!! THE FOLLOWING STEPS CAN ONLY BE COMPLETED ONCE YOU RECEIVE YOUR FORD RACING PROCAL FLASH TOOL. PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION!!!

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ProCal Calibration Flash Tool Instructions

Please follow the directions below in order to make sure that your vehicle's powertrain control module (PCM) is successfully programmed (flashed) with the correct calibration. **Do not drive the vehicle until the programming operation has completed successfully.** Please read these instructions in their entirety prior to beginning the flash procedure. If you have any questions or concerns, please call the Ford Racing Techline at 1-800-FORD788 if they are not addressed in this document.

This ProCal tool has been designed to deliver a performance calibration to your vehicle and keep a copy of your vehicle's stock calibration, should you decide to remove the performance pack for any reason. The tool will be locked to your vehicle until the stock calibration has been restored. Once the original calibration has been restored to your vehicle, the performance calibration and corresponding hardware can be installed on another vehicle of the same year, make, model, PCM part number, tire size and axle ratio.

Recalibration Procedure

Before You Begin:

1	Check to see that the battery is fully charged (at least 12.0 volts) and all accessories (radio, interior fan, headlights, etc.) are switched off. It is strongly recommended that the vehicle be connected to a battery charger during the flashing process to avoid potential low-voltage issues.
2	Locate the on-board diagnostic (OBD-II) diagnostic link connector (DLC) located beneath the dashboard on the driver's side of the vehicle. The exact location will vary with the model and year of the vehicle but will always be on the driver's side.

Flashing Your PCM:

1	Ensure the ignition key is in the OFF position.
2	Hold the ProCal tool so that the side with the instructions on it is facing up and the LEDs and switch are facing you. Slide the function switch to the LEFT (toward center of unit) to select the performance calibration, or to the RIGHT (toward edge of unit) to select the stock calibration.
3	Connect tool to the vehicle diagnostic connector and wait another 5 seconds. A blinking yellow light should appear which means the tool is ready to begin flashing the vehicle's PCM.
4	Turn key to ON position but do not start the engine. The yellow light should stop blinking and stay on during the PCM flashing process, which can take anywhere between 5 minutes and 40 minutes depending on the type of PCM. Please be patient and do not touch the key or turn on any accessories (such as the radio) while flashing is in process.
5	When the tool is finished flashing the PCM, the solid yellow light will turn off



	and either a solid green or solid red with blinking yellow will result. If the green light is on, turn the ignition key to the OFF position, remove the tool from the DLC and continue to STEP 6. If the red light is on, an error has occurred and the PCM has not successfully been flashed. Refer to the "Light Status" section below for diagnosis.
6	Congratulations! You have now successfully flashed the PCM. Start the engine and enjoy.

Light Status:

Solid GREEN only	Flashing process successfully completed.
Flashing YELLOW only	Ready to begin flashing process and waiting for key to be turned to ON position.
Solid YELLOW only	Flashing in process. Please be patient.
Solid RED, blinking YELLOW	Error encountered. Count yellow blink sequence and refer to the following table for error code. If the error code is not shown below, call the Techline for further instructions at 1-800-FORD788.

Error Code Diagnosis:

# of Blinks	Error	Description
1	Vehicle mismatch	Attempting to program second vehicle before first vehicle has been returned to the stock calibration.
2	Switch position error	Try again with the switch in the other position.
3	General software upload error	Call Techline at 1-800-FORD788.
4	General software download error	Call Techline at 1-800-FORD788.
6	Voltage read error	Try again with battery charger connected.
7	The battery voltage is too low	Try again with battery charger connected.
8	The battery voltage is too high	Check that correct battery is installed in vehicle.
9	The ProCal reprogramming voltage is not working properly	Check vehicle DLC wiring.



25. Inspect all underhood wiring harnesses for potential interference issues. Use zip ties to safely position the harness away from any areas of concern.

26. Pressurize the fuel system.

Note: This procedure was taken directly from the Ford service manual; section 310-00.

a. Install the fuel pump module fuse. Its location can be seen on pg 7 of this manual.

b. **NOTE:** It may take more than one key cycle to pressurize the fuel system. Cycle the ignition key and wait 3 seconds to pressurize the fuel system. Check for leaks before starting the engine.

c. Start the vehicle and check the fuel system for leaks.

27. Check for unusual noises, dash service lights, and unusual operation. If problems are detected, immediately stop the engine or vehicle, diagnose and repair the problem.

28. Affix the E.O. Decal (R07040042) on driver side strut tower adjacent to the air filter assembly.

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FORD RACING LIMITED WARRANTY

A Limited Warranty is valid only when proof of purchase is registered by the installing dealer by contacting the Ford Racing Call Center at 1(800) 367-3788. For warranty details please visit the website:

WWW.FORDRACINGPARTS.COM